NOAA Teacher at Sea
Mike Laird
Onboard NOAA Ship RAINIER
July 24 - August 13, 2005

Log 5

Day 6: Saturday, July 30

Time: 13:00
Latitude: 55° 53.4' N
Longitude: 158° 50.4' W
Visibility: 10 nautical miles (nm)
Wind Direction: Light Airs
Wind Speed: Light Airs
Sea Wave Height: 0'
Swell Wave Height: 0'
Sea Water Temperature: 11.7° C
Sea Level Pressure: 1013.0 mb
Cloud Cover: Sky 2/8 covered; Lower level: cumulus
Mid-level: altostratus

Science and Technology Log

I would like to add some clarifying information to my log entry, Day 5: Friday July 29. In that entry, I discussed setting up two horizontal control-data collection stations, and in reading the entry, it appears that the purpose for both stations is to support the "fly-away" Differential Global Positioning System (DGPS). This is not accurate. Only the station we established on the point will be used to determine the exact location of the DGPS.

The purpose of the other station is to verify the accuracy of the existing benchmark at that site, so a tidal datum ("…a base elevation used as a reference from which to reckon heights or depths") can be established for the tide station located there. I mentioned in the previous log that the horizontal control team is responsible for establishing accurate latitude and longitude coordinates for each sounding taken by the RAINIER and the launches. In addition, the soundings are taken throughout the day at different stages of the tide, which means that water depth will vary.

It is the responsibility of the vertical control team to provide precise tide data for corrections that have to be applied to the soundings so that they meet NOAA's Mean Lower Low Water (MLLW) guideline (ensures minimum water depth is charted). Mean Lower Low Water means that an average is taken of the tide level at the lower of the two ebb periods in a semi-diurnal (two flood periods and two ebb periods every day) tidal day. The National Water Level Observation maintains primary control stations in many locations around the United States. These stations determine a tidal datum based on the average of observations over a nineteen-year period.

In many survey areas, the tidal datum received from a primary control station can be used to make the necessary corrections to the soundings. However, the nearest station to the RAINIER's current work area is located in Sand Point – a significant distance away. Therefore, the vertical control team established the tertiary tidal station (one in operation for at least thirty consecutive days but less than a year) here in Cushing Bay, so that data more indicative of the local conditions can be collected and compared to the primary datum. During this analysis, a decision will be made about any adjustments that need to be made to the primary datum before it is used to make corrections to the survey soundings.

Personal Log

Our good fortune continues to hold – the weather is incredible. Sun is shining brightly, temperature in the low 70's. We had been hearing whispers since lunch of a beach party tonight. The rumors were confirmed by an announcement following dinner that a skiff would be ferrying people to the shore and back from 18:30 until 23:30. It was a time for the crew and guests to relax and hang out, enjoy a big driftwood bonfire, do a little beachcombing (the captain found a large whalebone – rib maybe), have some sodas and listen to a little music. A lot of fun!